

REMARKS

35 U.S.C. § 103 Claim Rejections

Claims 10, 12, and 14-17

By the Office Action dated January 12, 2010, the Examiner has rejected claim 10, 12, and 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Boguraev et al (U.S. Patent No. 6,185,592) (hereinafter “Boguraev”) in view of Chase (U.S. Patent No. 6,332,143) (hereinafter “Chase”) and further in view of Paik et al. (U.S. Patent No. 6,076088) (hereinafter “Paik”). In order to form a proper obviousness rejection of a claim under 35 U.S.C. § 103(a), a collection of references together must teach or suggest each element of the claim, including the relationships between the elements. If any element is not fully taught by the combined references, the rejection cannot be sustained.

Evaluating Boguraev in view of Chase in this light, it is appropriate to examine the portions of Boguraev in view of Chase that the Examiner has pointed to as teaching the claimed elements of the rejected claims.

Claim 10

The Examiner asserted that

[r]e claim 10, Boguraev teaches a method for extracting opinions about a subject of interest from a text document having a plurality of sentences, the subject associated with a plurality of features (Col. 10 line 19 – Col. 11 line 26), the method comprising:
extracting from the document feature terms (Col. 5 lines 1-8) related to the features most relevant to the subject (Col. 10 line 19 – Col. 11 line 26);
for each sentence referring to a feature term (Col. 10 line 19 – Col. 11 line 26), determining whether the sentence includes an opinion polarity about the feature term; and
for each sentence referring to the subject (Col. 10 line 19 – Col. 11 line 26), determining whether the sentence includes an opinion polarity about the subject,
for each sentence having a feature term and an opinion term, parsing the sentence with an English parser to identify grammatical components in

the sentence and relationships between said components (Col. 10 line 19 – Col. 11 line 26), and identifying an opinion polarity associated with said feature term using the opinion dictionary

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(See Office Action, pages 3-4.)

The Examiner admitted that

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Boguraev fails to teach determining whether the sentence includes an opinion polarity about the feature term identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion polarity identifying an opinion polarity associated with said feature term using the opinion dictionary

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(See Office Action, page 4.) The Examiner then asserted that

Chase teaches one denotative field is assigned to the word or phrase. A second denotative field is assigned to the denotative context (dictionary meaning) of the word or phrase. A third denotative field is assigned to the part of speech. Preferably, each context of each word is assigned a separate database record. Thus, if the dictionary definition of a single word has two meanings among a total of five denotative contexts, then there are five records, one for each context. There may be multiple contexts for a given dictionary meaning when, for example, there are different parts of speech for the word/meaning. (Chase Col. 7 lines 23-43).

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(See Office Action, pages 4-5.)

The Examiner next asserted that

5 Chase teaches connotative meanings for any given term are identified from a range of emotional descriptor terms. There are a plurality of predefined categories of emotional descriptors. In one embodiment described below for the English language there are 8 categories. In the preferred embodiment there are four categories of
10 positive emotions (e.g., affection/friendliness, enjoyment/elation, amusement/excitement and contentment/gratitude) and four categories of negative emotions (e.g., sadness/grief, anger/loathing, fear/uneasiness, and humiliation/shame). Within each category there are a predefined list of emotional descriptors. A term may have a
15 connotative meaning in any or all of the emotional categories. Some terms may not have any connotative meaning. In some embodiments only one emotional descriptor is permitted to be assigned for a given emotional category for a given term. Thus, for an eight category embodiment, any term can have 0 to 8 emotional descriptors—the
20 emotional descriptors being from different emotional categories. In other embodiments a primary and a secondary emotional descriptor may be assigned for any given term. For such an embodiment, which is based on 8 emotional categories, any term can have 0-16 emotional
25 descriptors—the emotional descriptors being in pairs, where the two emotional descriptors in a given pair being for a given emotional category. Different pairs include emotional descriptors for different emotional categories (Chase Col. 41 lines 9-36 & Fig. 4-7).

(See Office Action, page 5.)

The Examiner then asserted that “Chase teaches word relationship with one another, wherein one term will describe another term (i.e. lonely people) within the context of the emotion of a document (Fig. 6 and 7).” (See Office Action, page 6.)

The Examiner then asserted that

[t]herefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Boguraev to incorporate determining whether the sentence includes an opinion polarity about the feature term, identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion polarity, identifying an opinion polarity associated with said feature term using the opinion dictionary as taught by Chase to allow for various fields within a dictionary (i.e. meaning, context, parts of speech) (Chase Col. 7 lines 23-34), wherein stored emotional content is defined as 0 to n emotional connotations per record (or per term in the passage) whereby emotional connotations stored for each term in the database are associated with either a positive emotional category or a negative emotional category and displayed graphically (Chase Col. 11 line 45 – Col. 12 line 16 and Fig. 5-7).

(See Office Action, page 6.)

The Examiner next admitted that

Boguraev in view of Chase fails to teach the grammatical components include verb phrases, subject phrases, object phrases, complements, and prepositional phrases, each feature term may have a modifier describing the feature term, and the identifying includes for each sentence having a verb phrase where the verb phrase has no matching entry in the opinion dictionary, assigning an opinion polarity of the modifier of the feature term to the feature term, the opinion polarity of the modifier being defined in the

opinion dictionary.

(See Office Action, page 7.) The Examiner then asserted that

5 Paik teaches that each original and morphologically standardized
(e.g., the plural form of a noun converted to the singular form and the
past tense of a verb converted to the present tense form) phrase
candidate and phrasal verb candidate is checked against Conceptual
Hiearchy database 117 until the match is found. If no match is found
10 then the phrase or phrasal verb is not considered a concept. The
component words, which are open class words, of the phrase or the
phrasal verbs are considered as concepts. . . . (See Paik col. 12 lines
45-67.

15 (See Office Action, page 7.) The Examiner then asserted that “Paik teaches rules
that map a meaning to both verb and other grammatical elements . . . (Paik Col. 17 line 60
– Col. 18 line 5).” (See Office Action, page 8.)

The Examiner then asserted that

20 [t]herefore, it would have been obvious to one of ordinary skill in the art
at the time of the invention to modify the system of Boguraev in view of
Chase to incorporate grammatical components including verb phrases,
subject phrases, object phrases, complements, and prepositional phrases,
each feature term may have a modifier describing the feature term, and
25 the identifying includes for each sentence having a verb phrase where
the verb phrase has no matching entry in the opinion dictionary,
assigning an opinion polarity of the modifier of the feature term to the
feature term, the opinion polarity of the modifier being defined in the
opinion dictionary as taught by Paik to allow for the relational mapping of
30 verb and subject for instance (Paik Col. 17 line 60 – Col. 18 line 5),
wherein if no matching element is identified the concept of a phrase is

extracted based on other elements separate from the non-matching element, and the meaning still derived into a cluster concept, whereby a verb or another element will relate to define a concept (Paik Col. 12 lines 45-67).

5 (See Office Action, page 8.)

In reviewing the cited portions of Boguraev and Chase and Paik, it becomes apparent that Boguraev and Chase and Paik have been generalized, and, in fact, do not support the position asserted by the Examiner.

10 **for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term**

In particular, Boguraev and Chase and Paik, alone or in combination, fail to teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach determining whether the sentence includes an *opinion* polarity about the feature term”. (See Office Action, page 4.) In addition, Boguraev does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”. Chase also does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Chase cannot teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”.) In addition, Paik does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Paik cannot teach or suggest “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence referring to a feature term, determining whether the sentence includes an *opinion* polarity about the feature term”.

25 **for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject**

30 In particular, Boguraev and Chase and Paik, alone, alone or in combination, fail to teach or suggest “for each sentence referring to the subject, determining whether the

sentence includes an *opinion* polarity about the subject”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach determining whether the sentence includes an opinion polarity about the feature term”. (See Office Action, page 6.) In addition, Boguraev does not disclose or mention “*opinion* polarity” or “*opinion*” at all.

5 Thus, Boguraev cannot teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”. Chase also does not disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Chase cannot teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”. In addition, Paik does not
10 disclose or mention “*opinion* polarity” or “*opinion*” at all. Thus, Paik cannot teach or suggest “for each sentence referring to the subject, determining whether the sentence includes an *opinion* polarity about the subject”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence referring to the subject, determining whether the sentence includes an *opinion*
15 polarity about the subject”.

identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion polarity

Further, Boguraev and Chase and Paik, alone or in combination, fail to teach or
20 suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”, as required by claim 10. The Examiner admitted that “Boguraev fails to teach . . . identifying opinion terms in the sentence using an opinion dictionary, each entry in the dictionary having an opinion term, a part-of-speech tag, and an associated opinion
25 polarity”. (See Office Action, page 6.) In addition, Boguraev does not disclose or mention “*opinion* terms”, “*opinion* dictionary”, “*opinion* term”, “*opinion* polarity”, or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”. Chase also does not disclose or mention
30 “*opinion* terms”, “*opinion* dictionary”, “*opinion* term”, “*opinion* polarity”, or “*opinion*” at all. Thus, Chase cannot teach or suggest “identifying *opinion* terms in the sentence using

an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”. In addition, Paik does not disclose or mention “*opinion* terms”, “*opinion* dictionary”, “*opinion* term”, “*opinion* polarity”, or “*opinion*” at all. Thus, Paik cannot teach or suggest “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “identifying *opinion* terms in the sentence using an *opinion* dictionary, each entry in the dictionary having an *opinion* term, a part-of-speech tag, and an associated *opinion* polarity”.

for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components

In addition, Boguraev and Chase and Paik, alone or in combination, fail to teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components,” as required by claim 10. Boguraev does not disclose or mention “*opinion* term”. Thus, Boguraev cannot teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”. Chase also does not disclose or mention “*opinion* term”. Thus, Chase cannot teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”. In addition, Paik does not disclose or mention “*opinion* term”. Thus, Paik cannot teach or suggest “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “for each sentence having a feature term and an *opinion* term, parsing the sentence with an English parser to identify grammatical components in the sentence and relationships between said components”.

**identifying an *opinion* polarity associated with said feature term
using the *opinion* dictionary**

In addition, Boguraev and Chase and Paik, alone or in combination, fail to teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary,” as required by claim 10. The Examiner admitted that “Boguraev fails to teach a dictionary or similar table having an opinion term and an associated polarity.” (See Office Action, page 4.) In addition, Boguraev does not disclose or mention “*opinion* dictionary”, “*opinion* polarity”, or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”. In addition, Chase does not disclose or mention “*opinion* dictionary”, “*opinion* polarity”, or “*opinion*” at all. Thus, Chase cannot teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”. In addition, Paik does not disclose or mention “*opinion* dictionary”, “*opinion* polarity”, or “*opinion*” at all. Thus, Paik cannot teach or suggest “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “identifying an *opinion* polarity associated with said feature term using the *opinion* dictionary”.

**deriving an opinion skeleton for each of the extracted opinion,
thereby providing supporting details for this opinion**

In addition, Boguraev and Chase and Paik, alone or in combination, fail to teach or suggest “deriving an opinion skeleton for each of the extracted opinion, thereby providing supporting details for this opinion”, as required by claim 10, as amended. Boguraev does not disclose or mention “*opinion* skeleton” or “*opinion*” at all. Thus, Boguraev cannot teach or suggest “deriving an opinion skeleton for each of the extracted opinion, thereby providing supporting details for this opinion”. In addition, Chase does not disclose or mention “*opinion* skeleton” or “*opinion*” at all. Thus, Chase cannot teach or suggest “deriving an opinion skeleton for each of the extracted opinion, thereby providing supporting details for this opinion”. Also, Paik does not disclose or mention “*opinion* skeleton” or “*opinion*” at all. Thus, Paik cannot teach or suggest “deriving an opinion skeleton for each of the extracted opinion, thereby providing supporting details for this

opinion”. Therefore, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest the claim 10 element of “deriving an opinion skeleton for each of the extracted opinion, thereby providing supporting details for this opinion”. It is therefore clear that Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 10 and, therefore, a rejection of claim 10 under 35 U.S.C. § 103(a) would be inappropriate.

Claim 12

Since dependent claim 12 depends on claim 10 and since Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 10, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 12, and, therefore, a rejection of claim 12 under 35 U.S.C. § 103(a) is inappropriate.

Claims 14 and 15

Since dependent claims 14 and 15 depend on dependent claim 12 and since Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 12, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 14 or claim 15, and, therefore, a rejection of claim 14 or claim 15 under 35 U.S.C. § 103(a) is inappropriate.

Claims 16 and 17

Since dependent claims 16 and 17 depend on dependent claim 15 and since Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 15, Boguraev and Chase and Paik, alone or in combination, cannot teach or suggest each element of claim 16 or claim 17, and, therefore, a rejection of claim 16 or claim 17 under 35 U.S.C. § 103(a) is inappropriate.

Conclusion

It is therefore clear that the drawings and claims 10, 12, and 14-17 comply with the requirements of 37 CFR and 35 U.S.C. §§ 101, 102, 103, and 112. The application is therefore in condition for allowance. Early notification to that effect is respectfully solicited.

In the event that any issue remains unresolved, the Examiner is invited to telephone the undersigned at 408-927-3377.

Respectfully Submitted,

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Date: April 12, 2010

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